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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,125	12/31/2001	Ramkrishna Prakash	H052617.1136US0	1059

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO   80527-2400

EXAMINER
NGUYEN, HAI V

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/039,125	PRAKASH ET AL.
	Examiner	Art Unit	
	Hai V. Nguyen	2142	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>31 December 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>11/27/2002</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the application filed on 31 December

2001.

2.   Claims 1-23 are presented for examination.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

4.   Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

5.   Claim 1 recites "**A** server network **architecture**, the **architecture**

comprising:" in claim 1. " The architecture" is unclear whether it is software or

hardware in a system or an apparatus.

Claim Objections

6.   Claim 22 is objected to because of the following informalities: Claim 22

recites, "a filter agent to **covert** between..". It should be "...to convert..."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another
> filed in the United States before the invention thereof by the applicant for patent, or on an
> international application by another who has fulfilled the requirements of paragraphs (1), (2),
> and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA)

and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when

the reference is a U.S. patent resulting directly or indirectly from an international application filed before

November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e)

prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8.   Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by

Hu et al. U.S patent # **6,535,518 B1.**

9.   As to claim 1, Hu discloses a plurality of cluster nodes connected via a

SAN-based protocol *(Hu, various physical interfaces like multiple network*

interface or storage interfaces or multiple servers, col. 8, lines 8-17); and at least

one router node bridging the plurality of cluster nodes *(Hu, Fig. 8, items SAN 110*

or SAN 121) to a LAN *(Fig. 8, item 130).*

10.   As to claim 2, Hu discloses, wherein the router node is connected to the

LAN via a LAN-based protocol *(Fig. 1).*

11.   As to claim 3, Hu discloses, wherein the LAN-based protocol is TCP/IP

(Fig. 1).

12.   As to claim 4, Hu discloses, wherein the router node is connected to the

plurality of cluster nodes via a SAN-based protocol *(Fig. 1; col. 8, lines 8-17);.*

13.   As to claim 5, Hu discloses, wherein the SAN-based protocol is

INFINIBAND *(Fig. 1; col. 8, lines 8-17).*

Claim Rejections - 35 USC § 103

14.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

15.   Claims 6-23 are rejected under 35 U.S.C. 103(a) as being unpatentable

over **Hu** as applied to claims 1-5 above, and further in view of **DeKoning** U.S

patent #: **6,757,753 B1**.

16.   As to claim 6 Hu does not explicitly disclose wherein a first router node

and a second router node bridge the plurality of cluster nodes to the LAN. Thus,

the artisan would have been motivated to look into the related networking arts for

potential methods and apparatus for implementing s second node to bridge the

plurality of cluster nodes to the LAN.

In the same field of endeavor, DeKoning, related Uniform Routing Of

Storage Request Through Redundant Array Controllers, discloses (e.g. network

resource backup) that *the RAID storage devices 134 may interact with other*

storage-related devices and systems, such as a backup system 156 and a

remote data facility 158 which maintains a copy of the data from some or all of

the logical volumes 122 *(DeKoning, col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44).*

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated DeKoning's teachings of a second system (DeKoning, Abstract, *col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44)* with the teachings of Hu, for the *purpose of preventing the catastrophic failure of the data storage system and maintaining a mirror copy of the data (DeKoning, col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44).).*

17.   As to claim 7, Hu-DeKoning discloses, wherein the second router node bridges to the plurality of cluster nodes after the first router node fails-over to the second router node *(DeKoning, col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44).).*

18.   As to claim 8, Hu-DeKoning discloses, wherein the first and second router node bridges to the plurality of cluster nodes in parallel *(DeKoning, col. 5, line 45 - col. 6, line 3; col. 7, lines 25-44).*

19.   As to claim 9, Hu-DeKoning discloses, wherein the router node comprises a session management agent for maintaining session information for sessions between the router node and a cluster node of the plurality of cluster nodes *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8).*

20.   As to claim 10, Hu-DeKoning discloses, wherein the router node comprises a policy management agent for maintaining connection information and routing policies for the plurality of cluster nodes *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8).*

21.   As to claim 11, Hu-DeKoning discloses, wherein the router node comprises a routing agent for maintaining connection information for the plurality of cluster nodes *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8).*

22.   As to claim 12, Hu-DeKoning discloses, wherein the router node comprises a filter agent for bi-directional conversion between the SAN based protocol and a LAN based protocol *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8).*

23. As to claim 13, Hu-DeKoning discloses, wherein at least one cluster node comprises a management node for setting routing policies *(Hu, QoS requirements and measurements)* on the router node .

24. As to claim 14, Hu-DeKoning discloses, wherein the management node comprises a monitoring agent for obtaining statistics from the router node *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8)*.

25. As to claim 15, Hu-DeKoning discloses, wherein a cluster node of the plurality of cluster nodes comprises a session management agent for holding session information *(Hu, Figs. 8-10, the router keeps a routing table, switching status, and history and contain statistics, and controls the path traversed by the packets. The content in the routing table is provided by the server, based on storage controller (or SAN interface) and/or decoded packet information, cols. 7-8)*.

26. As to claim 16, Hu-DeKoning discloses, wherein a cluster node comprises a policy management agent for maintaining routing policies for the plurality of cluster nodes *(Hu, QoS requirements and measurements)*.

27. As to claim 17, Hu-DeKoning discloses a method of bridging a remote LAN client and a SAN cluster node, comprising the steps of:

receiving a LAN protocol communication from the remote LAN client *(Hu, Figs. 8- 9, Network interface 220 receiving incoming packets; cols. 7-8)*;

transforming the LAN protocol communication into a SAN protocol

communication *(DeKoning, Fig. 3, col. 8, lines 4-16; Hu, Figs. 8-9, Conversion*

221 and Switching 201, Fig. 10, Switching 303, converting the incoming packet

protocol into SAN Interface 250, col. 8, lines 1-17); and

sending the SAN protocol communication to a SAN cluster node *(Hu, Figs.*

8-9, then Conversion 221 and Switching 201, Fig. 10, Switching 303,sending the

incoming packet to SAN Interface 250, cols. 7-8).

28.   As to claim 18, Hu-DeKoning discloses, further comprising the step of:

establishing a connection between the remote LAN client and the SAN cluster

node *(Hu, Fig. 5; the connection between client and host established).*

29.   As to claim 19, Hu-DeKoning discloses, further comprising the step of:

maintaining statistical information for the SAN cluster node *(Hu, Fig. 10; col. 7,*

lines 45-50).

30.   As to claim 20, Hu-DeKoning discloses a method of bridging a SAN

cluster node and a remote LAN client, comprising the steps of:

receiving a SAN protocol communication from the SAN cluster node *(Figs.*

8-10 Decoding/Control/Routing 205 receiving the SAN communication; cols. 7-

8);

transforming the SAN protocol communication into a LAN protocol

communication *(DeKoning, Fig. 3, col. 8, lines 4-16; Hu, Figs. 8-10, 205*

decoding/control/routing the communication protocol buffer 211 and through

network interface 220; cols. 7-8); and

sending the LAN protocol communication to the remote LAN client *(Figs.*

8-10, 205 decoding/control/routing the communication protocol and sending to

buffer 211 and through network interface 220; cols. 7-8).

31.   Claim 21 is similar limitation of claim 18; therefore, it is rejected under the

same rationale as in claim 18.

32.   As to claim 22, Hu-DeKoning discloses a router comprising: a session

management agent to maintain session information for sessions with a plurality

of cluster nodes over a LAN; a routing agent to maintain connection information

for the plurality of cluster nodes connected via a SAN-based protocol *(Hu, Figs.*

8-10, the router keeps a routing table, switching status, and history and contain

statistics, and controls the path traversed by the packets. The content in the

routing table is provided by the server, based on storage controller (or SAN

interface) and/or decoded packet information, cols. 7-8); and a filter agent to

convert between the SAN-based protocol and a LAN-based protocol *(DeKoning,*

Fig. 3, col. 8, lines 4-16; Hu, Figs. 8-10, 205 decoding/control/routing the

communication protocol buffer 211 and through network interface 220; cols. 7-8).

33.   As to claim 23, Hu-DeKoning discloses, further comprising: a policy

management agent: to maintain routing policies *(Hu, QoS requirements and*

measurements) for the plurality of cluster nodes.

34.   Further references of interest are cited on Form PTO-892, which is an

attachment to this action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Harvey can be reached on 571-272-3896. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai V. Nguyen
Examiner
Art Unit 2142